



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
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Date: April 2, 2012

Dr. Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

SUBJECT: Federal Draft Environmental Impact Statement, US 64 Improvements Project and Replacement of Lindsay C. Warren Bridge, Tyrrell and Dare Counties, North Carolina; CEQ No.: 20110035; TIP Project Nos.: R-2544 and R-2545

Dear Dr. Thorpe:

The U.S. Environmental Protection Agency (EPA) Region 4 Office has received and reviewed the subject document and is commenting in accordance with Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The Federal Draft Environmental Impact Statement (DEIS) includes the widening improvements of US 64 from 0.9 miles from east of Columbia, N.C. to US 264 near Manns Harbor in Tyrrell and Dare Counties. Additionally, the proposed project also includes the replacement of the Lindsay C. Warren Bridge over the Alligator River on new location. The total proposed project length is approximately 27.3 miles.

EPA staff has been participating in the NEPA/Section 404 Merger process for the proposed project, including purpose and need, detailed study alternatives to be carried forward and bridging decisions and alignment review. Specific technical review comments on the DEIS are attached to this letter (See Attachment A).

EPA has rated the DEIS section alternatives DSA 1A, 1B, EL 1 to EL-13, 5A and 5B as 'Environmental Objections' (EO-2). DSAs rated as EO-2 are those alternatives where there is a potential for significant environmental impacts to waters of the U.S. that cannot be addressed without significant project modification or the development of other reasonable and feasible alternatives. The DEIS fails to address the avoidance of disproportionate high and adverse effects to minority and low income communities of Alligator and East Lake. The DEIS fails to identify appropriate avoidance and minimization measures and compensatory mitigation under Section 404 of the Clean Water Act for significant impacts to high quality waters of the U.S.

The USACE and NCDOT should consider context sensitive alternatives including targeted up-grades to US 64 that address the purpose of improved hurricane evacuation times. Targeted upgrades might include a 3rd west bound lane, improved paved shoulders, improved access to Alligator River National Wildlife Refuge, and enhanced safety features. Rehabilitation measures and potentially new bridge replacement options adjacent to the existing bridge right of way should also be considered.

Based upon the analysis and identification of a disproportionately high and adverse effects determination by NCDOT and USACE to environmental justice (EJ) communities, EPA is unable to support the current suite of build alternatives presented in the DEIS. EJ issues should be used in combination with other significant environmental issues that EPA has identified to encourage the NCDOT and USACE to develop practicable alignments and designs that meet the purposes of the project and also taken into account the unique qualities of the project study area.

The rating of '2' indicates that DEIS information and environmental analysis is not sufficient and that additional information and analysis is required. EPA recommends that all of the technical comments in the attachment be addressed in supplemental Merger documents and prior to the next concurrence meeting, including but not limited to current socio-economic data and the development of reasonable and context sensitive alternatives.

EPA will not be able to concur on the Least Environmentally Damaging Practicable Alternative (LEDPA) until the significant environmental issues identified in the attachment are satisfactorily resolved and supplemental Merger documentation is provided to the public, resource agencies and decision-makers.

Mr. Christopher Militscher of my staff will continue to work with you as part of the NEPA/Section 404 Merger Team process in the identification of reasonable and feasible alternatives. Should you have any questions concerning these comments, please feel free to contact him at Militscher.chris@epa.gov or (919) 856-4206 or (404) 562-9512. Thank you.

Sincerely,



Heinz J. Mueller
Chief, NEPA Program Office

w/Attachment

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Attachment A
Technical Review Comments on the DEIS
US 64 Improvements and Lindsay C. Warren Bridge Replacement
Tyrrell and Dare Counties
TIP Nos.: R-2544 and R-2545

General Comments

The DEIS cover includes the U.S. Army Corps of Engineers (USACE) as the Lead Federal Agency under NEPA (40 CFR Section 1501.5). Page iii, Section S.2 under the DEIS Summary and Chapter 1, Page 1-1 indicate that the document was prepared under the North Carolina State Environmental Policy Act (SEPA) requirements. It is stated that the DEIS conforms to the Council on Environmental Quality (CEQ) guidelines. The CEQ requirements under NEPA are regulations and are not guidelines (40 CFR Parts 1500-1508). The USACE is considering a major Federal permit action under the Clean Water Act (CWA) potentially requiring the preparation of a Federal DEIS (40 CFR Section 1501.4).

As the Lead Federal Agency under NEPA, the USACE is required to comply with all relevant and applicable Federal laws and regulations and Executive Orders (e.g., E.O. 12898 on Environmental Justice). NEPA allows for eliminating duplication of State and Federal requirements where appropriate (Please see 40 CFR Section 1500.4(n)). The inaccuracy of this section of the DEIS should be corrected in the Final Environmental Impact Statement (FEIS).

Project Purpose and Need

Page iv, Section S.4 under the DEIS Summary includes the purpose of the proposed project. It does not include the need for the proposed project. *The 'need' for the project describes the key problem(s) to be addressed and to the extent possible explains the underlying causes of those problems. The 'purpose' states clearly and succinctly why the project is being proposed and articulates the positive outcomes that are intended.* Please see: *Purpose and Need Guidance for FHWA-funded Projects in North Carolina, Version 2; February 2009* at <http://www.fhwa.dot.gov/NCDIV>.

To the extent practicable, the USACE and NCDOT should consider other Federal transportation agency guidance in its development of a project purpose and need.

The purposes of the project are outlined on page iv of the DEIS and are summarized as follows: Consistency with the NCDOT's Strategic Highway Corridor (SHC) plan; Reducing the US 64 hurricane evacuation times to better meet state clearance goals in the project study area; and, Maintaining a bridge across the Alligator River that meets the needs of highway users.

Consistency with the 2005 SHC [Vision] plan is not believed to be a documented need. This issue has been addressed on numerous other highway projects in the Merger process.

USACE, EPA and other agencies have maintained that consistency with the SHC Vision Plan is a purpose, and not a documentable need. The SHC Vision Plan can be and has been amended and modified by the NCDOT since 2005. The DEIS includes an expanded description of the SHC Vision Plan on pages 1-11 to 1-17. EPA does not concur that the proposed project as defined will meet applicable environmental laws (and regulations) including but not limited to the Clean Water Act, the Endangered Species Act, the Migratory Bird Treaty Act and Executive Order 13186¹. The DEIS also fails to demonstrate how the project as proposed meets 'fundamental environmental stewardship' as referenced on page 1-16.

Regarding hurricane evacuation and clearance times under N.C.G.S. Section 136-102.7, the proposed project's detailed study alternatives do not meet the State standard. Please see: <http://law.onecle.com/north-carolina/136-roads-and-highways/136-102.7.html>

"Evacuation Standard: The hurricane evacuation standard to be used for any bridge or highway construction project pursuant to this Chapter shall be no more than 18 hours, as recommended by the State Emergency Management officials". The discussion on page 1-32 of the DEIS does not address how the proposed project will meet this standard. Furthermore, the project study area is extremely rural and there is no documentation that there is any hurricane evacuation or transportation issues regarding the extremely small number of persons who reside in the project study area (See Figure S-2). Regarding the discussions of the 2005 NCDOT Hurricane Evacuation Study, EPA as a member of the oversight committee did not concur on the use of a 75% occupancy and Category 3 Hurricane event criteria for the Outer Banks. In an independent evaluation of the 2005 study, EPA could not identify one Category 3 Hurricane storm that has made actual landfall on the Outer Banks in the past 60 years of detailed National Weather Service records. Table 1-10 includes clearance times assuming 75% occupancy and a Category 3 Hurricane. Existing conditions are shown in the year 2007 and 22.5 hours to I-95. The 2030 No-build is shown as 28.9 hours. The discussion of boat traffic around the Lindsay C. Warren Bridge and potentially delayed clearance times on page 1-35 is not believed to be accurate or properly documented.

In a potential effort to illustrate the need for improvements to US 64, the DEIS states that the entire population of Dare County increased by 328% from 1970 to 2000. The report fails to analysis, however, that population growth has declined each consecutive decade within that interval. For example, population growth in Dare County slowed to 32% from 1990 to 2000 (as opposed to 91% from 1970 to 1980, and 70% from 1980 to 1990). The DEIS states that the population in Dare County is projected to grow by 80% between 2000 and 2030. In the wake of declining population growth over the last few decades and the recent economic downturn since 2009, EPA does not believe that these population projections to be realistic. The population projections also do not correspond to the land use information and population projections from the 2012 FEIS Indirect and Cumulative Effects report provided by FHWA and NCDOT for R-2576. The uncontrolled coastal development of the Outer Banks has significantly slowed due to more recent socio-economic trends, the substantial reduction in buildable lands and the lack of other needed infrastructure. Consequently, the inflated population estimates in the DEIS outside of the project study area can significantly alter hurricane evacuation estimates. The population

trends presented on pages 1-20 and 1-21, including the approximated 2003 seasonal peak population in Dare County of 200,000, is not believed to be a relevant U.S. Census 2010 statistic. Moreover, Table 1-2 ends population growth demographics for Tyrell and Dare Counties in 2000. The NCDOT and USACE should provide a supplemental NEPA document that includes more current U.S. Census data.

The DEIS fails to take in to account that evacuees can utilize other U.S. highways to vacate Dare County in the event of a Category 3 hurricane. These routes include US 264 to the south and US 158 to the north. Dividing automobile traffic among these three major corridors would subsequently reduce potential congestion and the evacuation time on US 64. NCDOT and FHWA are also proposing the 'gap-funded' Mid-Currituck Bridge toll project (R-2576) that would provide another evacuation route from the Outer Banks.

Considering the extremely large acreages managed as conservation areas, mitigation sites, preserves, wildlife gamelands, and a National Wildlife Refuge *within the project study area* [emphasis added] depicted on Figure S-2, the likelihood of future hurricane evacuation issues is not believed to be a foreseeable transportation problem. The existing two-lane Lindsay C. Warren Bridge over the Alligator River currently has an adequate ('fair') NCDOT safety rating (36 out of 100). There is no documentation provided in the DEIS that the existing two-lane bridge requires additional highway capacity to four lanes.

For some additional guidance on Purpose and Need, the USACE and NCDOT should consider the FHWA technical assistance information below and the website links:

Using Purpose and Need in Decision-making

As noted above, the purpose and need define what can be considered reasonable, prudent, and practicable alternatives. The decision-making process should first consider those alternatives which meet the purpose and need for the project at an acceptable cost and level of environmental impact relative to the benefits which will be derived from the project.

At times, it is possible that no alternative meets all aspects of the project's purpose and need. In such a case, it must be determined if the alternatives are acceptable and worthwhile pursuing in light of the cost, environmental impact and less than optimal transportation solution. To properly assess this, it is important to determine the elements of the purpose and need which are critical to the project, as opposed to those which may be desirable or simply support it, the critical elements are those which if not met, at least to some minimal level, would lead to a "no-build" decision. Determining critical needs could include policy decisions as well as technical considerations.

Other times, the cost or level of environmental impact are not acceptable and an alternative that only partially meets the purpose and need or the no-build alternative must be considered. If the costs are justified in relation to the transportation benefits, then a less than full-build alternative may be acceptable. <http://www.environment.fhwa.dot.gov/projdev/tmneed.asp>

"Care should be taken that the purpose and need statement is not so narrowly drafted that it unreasonably points to a single solution" (*FHWA Administrator: 7/23/03 Memorandum on Guidance on "Purpose and Need"*). <http://www.environment.fhwa.dot.gov/guidebook/Gjoint.asp>

As the Lead Federal Agency under NEPA, the EPA recommends that USACE should fully explore other Federal transportation agency guidance and requirements to justify a project need in consideration of the potential costs and significant environmental impacts associated with the proposed action. The USACE should consider the “No Action” alternative for US 64 and other potential interim actions with respect to maintaining the Lindsay C. Warren Bridge.

Secondary benefits of the proposed action are identified on page iv of the DEIS. These secondary benefits include the following: Potential for [the] reduction in total crash rates from the conversion of a two-lane rural roadway to a four-lane, divided section; A new Alligator River bridge will provide the opportunity for safety improvements related to the absence of a swing-span and signalized approaches, as well as improved shoulders, wider lanes, and bicycle-safe rails; and, Potential for improved regional bicycle trail connectivity and pathways from the Town of Columbia to the Outer Banks.

According to highway studies, the potential for the reduction in total crash rates by converting two-lane facilities to four-lane, median-divided facilities are not clearly documented. Recent studies show that lane width and wider paved shoulders are more important in the reduction of rural, two-lane crashes. Existing US 64 lacks the Annual Average Daily Traffic (AADTs) cited in the below referenced report to support conversion from two-lanes to four-lanes: Please see: <http://tti.tamu.edu/documents/0-4618-S.pdf>

Highway mitigation strategies are also available to the transportation agency in an effort to reduce rural two-lane total crash rates, including centerline or shoulder rumble strips, shoulder reflectors, safety edges, breakaway light poles, fixed object shielding, safety guard rails, driver pull-off/rest areas, etc. Please see: http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter4/4_lane3showwidth.htm

Passing lanes (3rd lane) improvements could also potentially reduce crash rates and address any improvements sought for hurricane evacuation purposes. EPA requested that NCDOT and other Merger team agencies consider this as a reasonable and feasible option during the development of detailed study alternatives. The rationale for using development and population forecasts on the Outer Banks that are outside of the project study area is not believed to be reasonable while at the same time not including US 264 in the evaluation of an alternate evacuation route. The project study area as currently presented in the DEIS does not provide for a full analysis of the issues and for a full range of reasonable alternatives.

Regarding the secondary benefit of evaluating safety improvements concerning the existing bridge over the Alligator River, there is no documentation provided that the existing bridge was designed by NCDOT as an unsafe structure (i.e., a swing-span bridge). EPA recognizes that a swing-span bridge for limited boat traffic may present an inconvenience at times for motorists on US 64. However, in a mandatory hurricane evacuation order, emergency management officials have the responsibility to keep the evacuation routes open to evacuees. Other improvements concerning improved shoulders, wider lanes and bicycle safety rails could be included in an alternative design that rehabilitates the existing structure.

EPA generally supports the secondary benefit of improved regional bicycle facilities between Columbia and the Outer Banks. However, this secondary benefit can be accomplished by implementing a number of improvements to the existing facilities that were not analyzed or fully considered in the DEIS. The comments concerning a lack of or the inadequacy of local transportation plans in Tyrell and Dare Counties on page 1-22 is noted.

Page 1-6 of the DEIS includes a description of the project setting. EPA notes that one business is identified in Tyrell County: a gas station/marina complex on the north side of US 64 at the Lindsay C. Warren Bridge. From previous Merger meetings, this business was more than 'a business' but reportedly a State-designated "Safe Harbor" that essentially required NCDOT to develop bridge replacement alternatives on new location. Page 1-10 of the DEIS includes the statement that the proposed project will improve connectivity of the US 64 corridor. EPA does not concur with this claim.

According to Section 230.1(d) of the Section 404 (b)(1) Guidelines, degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts, which may represent an irreversible loss of valuable aquatic resources. The project sponsoring agencies need to better demonstrate that the widening of the US 64 Corridor is justified given the potential for irreversible impacts to waters of the U.S.

Detailed Study Alternatives

EPA did not concur on the NCDOT's Detailed Study Alternatives (i.e., Concurrence Point 2) for the proposed project. Along with several other Merger team agencies, EPA's non-concurrence on the Detailed Study Alternatives to be Carried Forward was over-turned by the Merger Management Team on October 16, 2008. The 'requirements' for an expressway facility are not believed to be accurate or justified based upon a demonstrated project transportation need.

The DEIS includes traffic based upon the 2006 and 2030 design years (Page 1-27, et al). The 2030 design year is not consistent with other current NCDOT projects where the design year is identified as 2035. The traffic roadway operations and capacity analysis using 2006 is not consistent with requirements for providing current traffic data (6 year old 'stale' data).

The level of service (LOS) capacity data shown in Table 1-6 indicates that no links in the current facility experience any failing or near-failing LOS in 2006 or 2020. Regarding the US 64 crash rate comparisons on page 1-29 and Table 1-7, every type of crash category (total, fatal, non-fatal, night and wet) is significantly below the State-wide average and critical crash rates. The safety discussion concerning the conversion of 2-lane rural facilities to 4-lane facilities on page 1-30 is noted. Please see the following related information: FHWA has conducted numerous safety studies concerning high speed facilities: *"In 2008, there were 37,261 fatalities on our Nation's roadways. Of these; 11,674 (31 percent) were speeding-related!"*. Source: <http://safety.fhwa.dot.gov/speedmgt/>. Also included on this FHWA website is a 2007 chart depicting fatality rates per road type: Interstate facilities in rural areas had a rate almost double

that of Interstates in urban areas. This FHWA report also includes the following potentially relevant information:

Speeding—traveling too fast for conditions or in excess of the posted speed limits—is a factor in almost one-third of all fatal crashes and costs America approximately \$27.7 billion dollars in economic costs each year. Speeding is a safety concern on all roads, regardless of their speed limits. Much of the public concern about speeding has been focused on high-speed Interstates.

Considering the extremely significant costs of fatalities associated with high-speed facilities, especially in rural areas, EPA does not concur with the analysis provided in the DEIS. With the enormous areas surrounding existing US 64 Corridor that are designated gamelands, mitigation sites, Significant Natural Heritage areas, and the Alligator River National Wildlife Refuge, vehicle collisions with large mammals including black bear, white-tailed deer, coyote, bobcat, river otter, beaver, and the endangered red wolf would be expected to increase substantially. According to the statistics in the DEIS, animals accounted for 36% of the crashes along US 64 and animals were involved in 77% of night time crashes. The severity of future crashes is expected to be much greater with the increased traffic speeds on a 4-lane, median-divided facility. The 'mitigation' concept of providing occasional wildlife passages (bridging roads or using culverts as tunnels) under multi-lane high-speed roadways is still an emerging scientific issue. The addition of safety guard rails along the US 64 canals resulted in a four-time reduction in the fatal crash rate from previous safety studies (pages 1-30 to 1-31).

The DEIS discusses a Three-lane Alternative in Section 2.3.5 and Chapter 7. EPA also does not concur with the same reasons for eliminating a three-lane alternative presented on pages 7-20 to 7-21. Contrary to the issues identified in the DEIS for this project, NCDOT and FHWA are currently proposing to build a 22-mile, high-speed, SHC toll facility in Gaston County that is 2-lanes. The safety crash data presented on page 7-20 is not current (2003-2005 crash rates). The rural project setting and very limited population in the project study area is not compared to the 2 and 3-lane analysis provided. Furthermore, 4-lane divided facilities in extremely rural areas are expected greatly increase driver speeding habits and cause more severe collisions with wildlife. Head-on collisions with an existing two-lane facility have not been documented in the DEIS and it is not a reasonable assumption that a three-lane facility will increase head-on collisions as described on page 2-8. A concrete median barrier for a rural roadway with minimal AADT is not a reasonable safety measure. Considering the topography within the project study area and the presence of deep canals along significant portions of US 64, the median width 'safety argument' for recovery purposes is not believed to be valid. Safety along the existing facility is not identified as a project purpose and need and the discussions on pages 2-8 to 2-10 do not take into account the context sensitive nature of the project study area. The discussion of a median barrier and an additional westbound evacuation lane causes a capacity 'bottleneck' is not believed to be documented or a reasonable assessment. EPA maintains that a Three-lane Alternative was not given a full and reasonable consideration for the proposed project in consideration of the project's purpose.

The Lindsay C. Warren Bridge is described on pages 1-24 to 1-26. The potential rehabilitation of this bridge is detailed in Section 2.3.7. The deficiencies identified on pages 2-

10 and 2-11 do not demonstrate that the existing structure is ‘unsafe’ as cited on page 2-10. There are no costs associated with the rehabilitation measures identified on page 2-11 and the reasons provided are based primarily on the desire to increase traffic capacity on the bridge (Current or future traffic capacity is not a documented need for the project). Without costs and an objective analysis of rehabilitating the existing bridge, EPA does not concur with the elimination of this potentially reasonable alternative. Rural 2-lane bridges are replaced (in place) in numerous places in North Carolina and plans to re-route local traffic are often required while a new or rehabilitated structure is being constructed. There is an existing ‘parallel’ route on US 264 for re-routing traffic as rehabilitation activities are made on the Lindsay C. Warren Bridge. Even a new bridge adjacent to the existing bridge was not given full consideration and EPA did not concur that a new 2-lane or 4-lane bridge structure with wider paved shoulders (to meet current design standards) could not be tied in on either end of the existing bridge. For example, a new 2-lane bridge adjacent (within 30-feet) to an existing 2-lane bridge is currently being planned over the Chowan River as part of TIP Project No. R-2507A. Within the current design year traffic forecasts presented in the DEIS, the ‘need’ for a 4-lane bridge is not documented.

Under Travel Demand Management Alternatives, the DEIS on page 2-7 indicates that there is only one other evacuation route (US 158) from the Outer Banks. This statement is not accurate and US 264 should be considered for evacuation purposes as it has common termini with US 64.

The rationale for providing improved (wider) shoulder lengths for disabled vehicles is a reasonable operational and design consideration. As with ‘run-a-way’ ramps for trucks in the N.C. mountains, providing reasonable paved shoulder areas along existing U.S. 64 is a valid safety consideration as presented on page 2-14. However, the entire 27.3 mile length of the proposed project may not require widened paved shoulders for its entire length and consideration should be given to placing strategic widened shoulders in areas that would allow for motorists to pull-off of the additional westbound hurricane evacuation lane (Third-lane Alternative).

The rationale presented on pages 2-12 to 2-18 for evaluating a 46-foot and 23-foot median design alternatives for Tyrrell County and only a 23-foot median alternative for Dare County is not believed to be reasonable or consistent with current NCDOT design requirements. If a 23-foot raised median has been determined to be safe and acceptable for US 64 for Dare County, it would be reasonable that the 23-foot raised median would be safe and acceptable for the Tyrrell County portion (i.e., same project purposes; same traffic capacity; same potential evacuation issues; etc.). The DEIS includes ‘cons’ of utilizing a 23-foot median design on page 2-18. These claims are not supported by actual documentation. Safety along the existing US 64 2-lane highway is not included as a project purpose. From the discussion on pages 2-15 and 2-18, it is likely that carrying forward for detailed study a 23-foot median design alternative in the DEIS was apparently only considered in order to obtain concurrence from certain agencies on the Merger Management Team. NCDOT’s 46-foot median ‘requirement’ discussed on page 2-15 does not provide a ‘*demonstration of a good-faith attempt to balance environmental stewardship with safety and functionality*’. Safety is not part of the stated purpose of the project or a documented need. Based upon current traffic and future projections and other transportation measures identified in the DEIS, the existing 2-lane US 64 functions adequately.

The DEIS includes detailed discussions concerning the DSAs on pages 2-45 to 2-74. The options considered do not represent a full range of reasonable alternatives as required under 40 CFR Part 1502.14. For example, Section 3, Bridge Replacement Corridors include the bridge crossing lengths of the Dare North 1 (3.13 miles), Dare North 2 (3.19 miles) and Dare Northern Bypass (3.77 miles). All three bridge alternatives begin on new location in Tyrrell County to the north of the existing bridge. Without providing a comparison to a rehabilitation alternative or a southern terminus to the 2.3-mile Lindsay C. Warren Bridge, these alternatives were evaluated in detail without consideration of other potentially reasonable alternatives.

The statement on page 2-71 concerning the 'difficulty of comparing the impacts because not all of the corridors start and end at the same location' is unclear and not consistent with the requirements under 40 CFR Part 1502.14. The Table on 2-7 demonstrates that basically slight variations to similar corridors and with different design options is meant to present a 'full range of alternatives' for the East Lake area of the project. Thirteen (13) East Lake alternatives are identified and thus it appears that a 'full range of alternatives' were considered under NEPA. EPA does not concur with this approach and that some if no most of the alternatives are not practicable alternatives considering the project's purposes.

Pages 2-75 to 2-78 reiterate the project's purposes and the ability of the build alternatives to meet the purposes. All of the build alternatives improve the hurricane evacuation clearance time to 11.9 hours. Approximately 17 hours less than the 28.9-hour No-build Alternative and 6 hours less than the standard of 18 hours. This would clearly indicate that a 'lesser' design of one additional westbound lane (Three-lane Alternative) would potentially meet the clearance time standard of 18 hours.

Project costs for the DSAs are identified in Section 2.8 of the DEIS. None of the tables 2-9 to 2-11 include potential mitigation costs for impacts to waters of the U.S. This information should be provided in a supplemental NEPA document. The 'total' costs for Section 1 range between \$64.8 million and \$73.4 million (EPA rounded to a tenth of a million from individual dollar amounts). Section 2, 3 and 4 alternatives range from \$220.8 to \$252.5 million. Section 5 total costs range from \$70.1 million to \$73.4 million. EPA notes the comment to Table 2-10 reflecting only a 46-foot median for the Tyrrell North Alternative. There are no preliminary or estimated costs for a Third-lane Alternative or bridge rehabilitation option.

Affected Environment

On page 3-1 of the DEIS, communities on the Outer Banks, such as Duck and Kitty Hawk, are referenced. These communities are outside of the project study area as defined. The Town of Plymouth to the west of Columbia is not referenced in this discussion. EPA does not agree with the methodology of the project study area (PSA) analysis as described on page 3-2, specifically as it pertains to population and traffic projections on the Outer Banks that are not included in the PSA. EPA is concerned that there is a lack of viable U.S. Census data for the East Lake and Alligator communities (page 3-2). The demographic information included in Table 3-1 is not recent (within the past 5 years) or potentially relevant (Demographic area, County-wide, and State-wide numbers only and not specific to the PSA).

EPA acknowledges the comments on page 3-10 concerning future population trends. Tables 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, and 3-10 (Population by Race and Hispanic Origin; Population by Age; Change in Education, Income Measures and Persons Living Below the Poverty Line; Change in Income Measures and Persons Living Below the Poverty Line; Income Measures and Persons Below Poverty Level By Block Group; and Housing Characteristics, respectively) are all based upon 2000 U.S. Census data. This information is not believed to be accurate for the purposes of determining potential requirements under Executive Order 12898., Other socio-economic data presented in the DEIS is not believed to be fully accurate as to be used for current conditions or future trends. NCDOT and USACE should consider providing a supplemental NEPA document that uses 2010 U.S. Census data.

The connection between the 'WAMI' project described on page 3-19 and its direct socio-economic effect on communities within the PSA (Alligator and East Lake) is not analyzed nor disclosed in the DEIS. EPA notes the comments on the Alligator and East Lake communities on pages 3-20 and 3-21 of the DEIS.

EPA acknowledges the comment provided on page 3-33 of the DEIS: *"I sincerely hope that these improvements (to US 64) will not be delayed or detrimentally impacted by management plans of the USFWS"*. The USFWS response to Dare County comments are noted on page 3-34. Section 3.3 includes discussions concerning protected lands and recreation areas. EPA notes that portions of the Pocosin Lakes National Wildlife Refuge are located in the PSA. The Palmetto-Peatree and Alligator River Preserves, J. Morgan Futch and Alligator River Gamelands, Great Dismal Swamp, Scuppernong River and Hidden Lake Wetland Mitigation Banks, numerous Significant Natural Heritage Areas (6 located in Tyrrell County), Alligator River National Wildlife Refuge, Creef Cut and Sandy Ridge Wildlife Trails, and Significant Natural Heritage Areas (4 in Dare County) are all located within the PSA.

The water quality designations identified on pages 3-65 and 3-66 includes the Outstanding Resource Water (ORW) and High Quality Water (HQW) designations for the Alligator River within the PSA.

The comments concerning Black Bear and Red Wolf studies described on pages 3-84 to 3-86 should have been timed such that the completed studies would be completed, analyzed and incorporated into the DEIS prior to the issuance of the DEIS. Considering the recognized importance of wildlife resources within the PSA, EPA does not believe that the completion of these necessary studies should be made after the potential selection of a Least Environmentally Damaging Preferred Alternative (LEDPA).

EPA notes that the multi-agency accepted North Carolina Wetlands Assessment Methodology (NCWAM) was not utilized for the wetland classifications and plant communities within the PSA (Table 3-16). The comment on page 3-93 concerning canals and ditches and USACE jurisdictional determinations is not clear.

Hazardous material sites and underground storage sites within the PSA, including the Alligator River Marina and the former Dare County East Lake Landfill are described on pages 3-

118 and 3-119. EPA notes that both sites are contaminated and potentially under remediation efforts.

Impacts to the Human and Natural Environment

Impacts to the human and natural environment are included by project section in Tables 4-1 to 4-9. Total impacts for the project are not summarized in a comparison form that clearly delineates the differences between the DSAs.

An analysis concerning Environmental Justice impacts under E.O. 12898 to the communities of Alligator and East Lake is included in Section 4.1.6. Based upon the analysis and identification of a disproportionately high and adverse effects determination by NCDOT and USACE (Pages 4-32 and 4-33), EPA recommends the no-build alternative. Because this potential adverse impact is in Section 1 of the PSA, the proposed project would lack a 'whole and complete' status to fulfill the stated purposes. In addition, the DEIS also states that most of the DSAs associated with the East Lake community also represent a disproportionately high and adverse effect (Table 4-13). EPA strongly recommends that NCDOT and USACE develop a substantiated project and need and new alternatives that do not result in disproportionately high and adverse effects to minority and low-income communities.

For DSA 1A, the natural resource impacts are significant and a magnitude greater than most eastern N.C. projects: 46.6 to 54.9 acres to Managed Lands, 36.3 to 40.0 acres to SNHAs, 73.5 to 83.4 acres to Protected Species Habitat, 76.1 to 94.9 acres to jurisdictional wetlands, 39,781 to 39,766 linear feet to jurisdictional waters (canals), and 114.7 to 133.6 acres to Essential Fish Habitat.

For DSA 1B, the natural resource impacts are significant and a magnitude greater than most eastern N.C. projects: 14.2 to 18.6 acres to Managed Lands, 25.7 to 31.0 acres to SNHAs, 56.7 to 66.9 acres to Protected Species Habitat, 75.4 to 99.3 acres to jurisdictional wetlands,) and 78.5 to 101.9 acres to Essential Fish Habitat.

For DSAs EL 1 to EL 13, impacts to natural resources are again extremely high for this 6.7 to 6.9 mile segment. For example, EL 5 impacts 60.8 acres of jurisdictional wetlands and 89.3 acres to Essential Fish Habitat. EL 1 to 13 also impact between 0.6 and 21.9 acres of the Alligator River National Wildlife Refuge (ARNWR).

For DSA 5A, the natural resource impacts are significant and a magnitude greater than most eastern N.C. projects: 116.3 acres to ARNWR, 53.7 acres to Managed Lands, 98.5 acres of jurisdictional wetlands, 17,325 linear feet to jurisdictional waters (canals), 34.2 acres to Protected Species Habitat, and 145.2 acres to Essential Fish Habitat.

For DSA 5B, the natural resource impacts are significant and a magnitude greater than most eastern N.C. projects: 133.8 acres to ARNWR, 102.9 acres to Managed Lands, 91.5 acres of jurisdictional wetlands, 31,010 linear feet to jurisdictional waters (canals), 39.3 acres to Protected Species Habitat, and 194.4 acres to Essential Fish Habitat.

In addition to the significant impacts to natural resources, the project includes impacts to prime farmlands, residences and businesses, historic structures, hazardous material sites and a cemetery. The DSAs impacts do not meet the 'balancing and avoidance' requirements under several potential environmental laws.

The DEIS states that mitigation is normally not considered until avoidance and minimization of impacts has been demonstrated to the fullest extent practicable, a much clearer and specific protocol for mitigation should be outlined in a supplemental NEPA document. For example, a functional assessment (such as NCWAM) should be identified for use to determine quality and level of function within impacted wetlands. These functional assessments will aid in the determination of mitigation ratios and credits. Avoidance and minimization measures proposed in the DEIS are not believed to be adequate to meet the requirements under Section 404(b)(1) Guidelines.

Footnote: ¹ U.S. Department of Interior letter dated March 29, 2012.